

CLAIMS

1. A decorating sheet comprising:  
a transparent resin substrate sheet, and  
a glossy layer formed on the back surface of the transparent resin substrate sheet,  
the front surface of the transparent resin substrate sheet being divided into high-gloss portions with relatively high gloss and low-gloss portions with relatively low gloss,  
the thickness of the transparent resin substrate sheet being relatively great at the high-gloss portions and relatively small at the low-gloss portions so that the decorating sheet provides a pattern that is visually sensed as if it were a three-dimensional pattern with protrusions and depressions that correspond to the thickness of the transparent resin substrate sheet on the high-gloss portions and that on the low-gloss portions.
2. The decorating sheet according to claim 1, further comprising, a decorative layer that does not fully opacify the glossy layer between the transparent resin substrate sheet and the glossy layer.
3. The decorating sheet according to claim 1, further comprising, a backing sheet made from a thermoplastic resin provided on the back surface of the glossy layer.
4. The decorating sheet according to claim 1, wherein the back surface of the transparent resin substrate sheet has protrusions protruding toward the back surface side, in the positions corresponding to the high-gloss portions.
5. The decorating sheet according to claim 1, wherein the transparent resin substrate sheet is composed of a first transparent resin substrate sheet on the front surface side

and a second transparent resin substrate sheet on the back surface side,

the first transparent resin substrate sheet is made from a crystalline resin, the second transparent resin substrate sheet is made from a non-crystalline resin, and the melting point of the first transparent resin substrate sheet is higher than the softening point of the second transparent resin substrate sheet.

6. A decorated molded product comprising:

a decorating sheet, and

a resin molded product produced on the back surface of the decorating sheet,

the decorating sheet comprising:

a transparent resin substrate sheet, and

a glossy layer formed on the back surface of the transparent resin substrate sheet,

the front surface of the transparent resin substrate sheet being divided into high-gloss portions with relatively high gloss and low-gloss portions with relatively low gloss,

the thickness of the transparent resin substrate sheet being relatively great at the high-gloss portions and relatively small at the low-gloss portions so that the decorating sheet provides a pattern that is visually sensed as if it were a three-dimensional pattern with protrusions and depressions that correspond to the thickness of the transparent resin substrate sheet on the high-gloss portions and that on the low-gloss portions.

7. The decorated molded product according to claim 6, wherein

the back surface of the transparent resin substrate sheet has protrusions in the positions corresponding to the high-gloss portions of the front surface of the transparent resin substrate sheet, and the high-gloss portions are flat.

8. The decorated molded product according to claim 6,

wherein

the back surface of the transparent resin substrate sheet has protrusions in the positions corresponding to the high-gloss portions of the front surface of the transparent resin substrate sheet, and the high-gloss portions are convex.

9. An in-injection-mold decorating method for producing a decorated molded product, in which when a resin is molded into a molded product, a decorating sheet is integrally laminated to the surface of the molded product, comprising:

the sheet-making step (A) in which a laminate of a transparent resin substrate sheet and a glossy layer is heated and embossed so that the transparent resin substrate sheet has, high-gloss portions with relatively high gloss and low-gloss portions with relatively low gloss on the front surface, and the transparent resin substrate sheet is relatively thick at the high-gloss portions and relatively thin at the low-gloss portions, thereby making a decorating sheet,

the vacuum forming step (B) in which the decorating sheet is softened by heating and is vacuum-formed into the desired shape that corresponds to the shape of a decorated molded product to be finally produced, and

the injection molding step (C) in which the vacuum-formed decorating sheet is placed in an injection mold, with the front surface side of the decorating sheet facing the inner face of the injection mold, and a resin is poured into this injection mold and is then hardened, thereby molding the resin into a resin molded product, and, at the same time, integrally laminating the decorating sheet to the surface of the resin molded product.

10. The in-injection-mold decorating method according to claim 9, wherein

the transparent resin substrate sheet in the laminate has a first transparent resin substrate sheet on the front surface side and a second transparent resin substrate sheet on the back

surface side, the first transparent resin substrate sheet is made from a crystalline resin, the second transparent resin substrate sheet is made from a non-crystalline resin, and the melting point of the first transparent resin substrate sheet is higher than the softening point of the second transparent resin substrate sheet.

11. The in-injection-mold decorating method according to claim 10, wherein,

in the sheet-making step, embossing is carried out at a temperature equal to or higher than the melting point of the first transparent resin substrate sheet.

12. The in-injection-mold decorating method according to claim 10, wherein,

in the vacuum forming step, vacuum forming is carried out at a temperature equal to or higher than the softening point of the second transparent resin substrate sheet and lower than the melting point of the first transparent resin substrate sheet.